

MAINE PUBLIC HEALTH ALERT NETWORK SYSTEM



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****UPDATE – Important Information****

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TO: Hospital List; School Based Health Centers; School Nurses; Me
Primary Care; Infection Control Practitioners; Public Health (PHN)

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Lyme Disease in Maine:

Maine Center for Disease Control and Prevention (Maine CDC)
(Formerly Bureau of Health)

Answers to Frequently-Asked Questions from Health Professionals

Background: Although the Maine Center for Disease Control and Prevention does not provide clinical consultation on the management of individual cases of Lyme disease, the Medical Epidemiology Section in the Division of Infectious Disease receives frequent requests from health professionals for Lyme disease-related information to assist in patient assessment and care. This Health Advisory includes answers to some of the more frequently asked questions that we receive, and is not intended in any way to be comprehensive.

Summary: Maine has the 12th highest rate of Lyme disease among the U.S. states and its incidence has been increasing steadily since the late 1990's. While the majority of cases occur among residents of southern coastal Maine, medical providers should be aware that the range of deer ticks in Maine has expanded gradually in recent years and that exposure to deer ticks and Lyme disease can occur in other areas of the state as well. Authoritative guidelines for the clinical diagnosis and management of Lyme disease and other tickborne diseases have been recently updated by the *Infectious Diseases Society of America*, and links are available at the Maine CDC website:

http://www.maine.gov/dhhs/boh/ddc/_lyme/lyme_1.htm

FAQ: Lyme Disease in Maine

EPIDEMIOLOGY and ECOLOGY

1. Is the incidence of Lyme disease increasing in Maine?

In Maine, the incidence of Lyme disease has increased steadily since the late 1990's. In 2006, 338 reported cases were confirmed among state residents, an increase of 37% from 2005. While improvements in diagnosis and reporting may contribute to some degree, researchers and epidemiologists believe that there has been a real increase in disease incidence. Similar increases were seen in some other New England states during the same period.

2. What is the seasonality of Lyme disease in Maine?

The great majority of cases of early Lyme disease have the onset of their symptoms during the summer months (June – August). A second, much smaller peak occurs in the fall (September – November), when adult deer ticks are active. Very small numbers of cases are seen during the winter and early spring (December – May).

3. Where are the highest incidence rates in Maine?

About two-thirds of reported Lyme disease cases in Maine are reported among residents of York and Cumberland Counties, with the highest rates in southeastern York County. Over the past decade the numbers of cases have also been increasing steadily in areas of the midcoast (Sagadahoc, Knox, and Lincoln Counties) and in the lower Kennebec river valley. The numbers of cases are generally much lower in the western mountains and in northern Maine. This distribution is consistent with ecological research on the distribution of deer ticks in Maine.

4. In what types of outdoor environments are deer ticks likely to be found?

“Potential tick habitat” is a term used to describe the type of environment preferred by deer ticks, and it includes woody or brushy areas and terrain with high grass and lots of leaf litter.

5. Should I consider Lyme disease in the differential diagnosis of a person with compatible signs and symptoms (e.g., erythema migrans-like rash) whose only recent outdoor activities have been in a “low incidence” area of Maine, such as Aroostook County?

Yes. Even in areas where deer ticks are relatively uncommon and the numbers of Lyme disease cases are low, small foci of tick populations may present some risk of Lyme disease exposure to humans. By the same token, there are many areas of “potential tick habitat” in generally high incidence regions - such as coastal York County - where ticks are absent or sparsely distributed. It is reasonable to assume that there is at least some risk of Lyme disease exposure for persons who engage in outdoor activities in any “potential tick habitat” in Maine, especially during the summer and fall.

OTHER TICK-RELATED ISSUES

6. Do deer ticks in Maine carry infections other than Lyme disease?

Yes. While Lyme disease is by far and away the most common tickborne disease, deer ticks in Maine can also occasionally transmit *babesiosis* and *human granulocytic anaplasmosis* (HGA). These are described in the IDSA Guidelines (reference in the summary section, above) and also on other areas of the Maine CDC website section on tickborne infections. A close relative of the deer tick (*Ixodes cookei*, also known as the “woodchuck tick”) can also transmit *Powassan encephalitis*, a rare viral infection closely related to West Nile virus. Four cases of Powassan encephalitis were documented here between 2000 and 2004.

7. Do dog ticks in Maine transmit any diseases to humans?

In other areas of the country, dog ticks (*Dermacentor variabilis*) can transmit *rocky mountain spotted fever* (RMSF). In Maine, however, neither RMSF or any other significant human diseases have been documented to be associated with exposure to dog ticks.

8. Where in Maine can I send a tick to be identified?

The Maine Medical Center Research Institute (MMCRI) Vector borne Disease Laboratory in South Portland will identify the species of submitted ticks found on humans or pets. This is done free-of-charge. Ticks should be placed in alcohol in a leak proof container and sent to MMCRI per instructions that can be found at: <http://www.mmcri.org/lyme/submit.html>.

DIAGNOSIS AND MANAGEMENT

9. Is laboratory testing necessary to support a clinical diagnosis of *erythema migrans* (EM)?

No. Serological testing during the first 2 weeks of infection is too insensitive to rule out Lyme disease. *Erythema migrans* – the expanding rash that occurs within 3-30 days of tick removal or detachment in about 70%-80% of Lyme disease cases – often occurs *before* a serological response has occurred. Thus, treatment decisions should be made on the basis of a clinical diagnosis based on physical examination and history (see the 2006 IDSA Guidelines referenced above, for an excellent and well-illustrated overview of EM) and should not depend on laboratory testing for confirmation. Laboratory testing, however, is a critical and necessary component of the evaluation of persons with possible Lyme disease-associated signs and symptoms other than *erythema migrans*.

10. What diagnostic tests are currently recommended for use in Lyme disease diagnosis?

In the absence of *erythema migrans*, both the Federal CDC and the *Infectious Diseases Society of America* recommend the use of two-tier serological testing, that includes a sensitive screening test (ELISA or IFA) followed by IgM and IgG Western Blot testing, if the screening assay is positive. Clinicians should be wary of non-validated test methods used by some commercial laboratories, including polymerase chain reaction (PCR) testing of blood, urine antigen tests, and lymphocyte transformation tests. Some laboratories also interpret Western blot tests using criteria that have not been validated and published in peer-reviewed scientific literature (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5405a6.htm>).

11. Where can I find reliable guidance on current approaches to Lyme disease diagnosis and management?

The *Infectious Diseases Society of America* (IDSA) released its detailed update of clinical practice guidelines for Lyme disease and other tickborne infections in late 2006. These can be downloaded from the Maine CDC website (www.mainepublichealth.gov).

PREVENTION

12. Does early tick removal effectively prevent Lyme disease?

Yes. The removal of an infected deer tick within 36 hours of its attachment will prevent transmission in most cases. Perhaps the most important component of Lyme disease prevention is performing daily tick checks after spending time in potential tick habitat, and removing any ticks that may have become attached.

13. What are the current recommendations for the use of tick repellents?

For application to uncovered skin, the federal CDC currently recommends the use of insect repellents containing a 20%-50% concentration of **DEET** for the prevention of tick bites. The American Academy of Pediatrics recommends that repellents containing up to 30% DEET can be used on children > 2 months of age. DEET concentrations in this range will provide protection for 5-8 hours against both ticks and mosquitoes. Data on the tick prevention effectiveness of **picaridin**, an effective alternative to DEET for

prevention of mosquito bites, is currently limited. **Permethrin**, which is sold in spray and liquid forms, can be applied to shoes, socks and outer clothing (but not directly to skin), and kills ticks on contact. After an application, it will remain effective through several washings. It is also effective in preventing mosquito bites.

14. How do I report a case of Lyme disease to Maine CDC?

Lyme disease case reporting forms can be downloaded from the Maine CDC website and faxed or mailed to our office. Remember that it is especially important to report cases of clinically-diagnosed erythema migrans (EM), and that laboratory testing is not required to confirm a case of EM.

15. What is Maine CDC doing to increase public awareness about Lyme disease prevention?

Although there is currently no dedicated federal or state government funding for Lyme disease education and prevention, Maine CDC has worked with community partners for several years doing this work within existing resources, including developing and disseminating educational materials, assuring that information on Lyme Disease is presented at some annual medical and public health meetings, and maintaining a website dedicated to tick borne diseases in Maine. Maine CDC recommends that health education efforts utilize a “universal tick hygiene” approach that includes recognition of typical EM rashes, the proper use of insect repellents, and an emphasis on the importance of tick checks and early tick removal after work or recreation in tick habitat (whether or not it is in a high incidence area of the state). Existing materials can be found and downloaded at www.mainepublichealth.gov.